

### Abstract

A system for performing electrical impedance tomography. The system includes a first set of electrodes positioned in a first plane and a second set of electrodes positioned in a second plane. The system also includes a third set of electrodes positioned in a third plane between the first and second planes. The third set of electrodes is rotatable around an axis intersecting the third plane. Furthermore, the third set of electrodes may be moveable in an axial direction between the first and second planes to various other planes, e.g., a fourth plane, a fifth plane, etc. The processor is further configured to process the voltage measurements taken by the voltage measurement device so as to generate a current density distribution in the various other planes. In addition, the processor is further configured to generate a three-dimensional image corresponding to the current density distribution between the first and second planes.